

Appendix 7.5 Manipulation under anaesthesia

Study: Amir-us-Saqlain 2007⁸⁴

Outcome: Pain

Not reported

Study: Amir-us-Saqlain 2007⁸⁴

Outcome: Function and disability

Not reported

Study: Amir-us-Saqlain 2007²⁴**Outcome: Range of movement – active abduction (°)**

<i>Intervention</i>	<i>Time point</i>	<i>No. randomised</i>	<i>Mean</i>	<i>SD</i>	
MUA + steroid injection + manipulated extremity kept in abduction and external rotation + PT	Baseline	23 (16) ^a	33.75	11.03	
MUA + steroid injection + PT		20 (17) ^a	29.71	13.05	
<i>Intervention</i>	<i>Time point</i>	<i>No. analysed</i>	<i>Mean</i>	<i>SD</i>	<i>p-value^b</i>
MUA + steroid injection + manipulated extremity kept in abduction and external rotation + PT	12 weeks	16	151.81	13.19	0.00
MUA + steroid injection + PT		17	122.82	21.08	

Outcome: Range of movement – active external rotation (°)

<i>Intervention</i>	<i>Time point</i>	<i>No. randomised</i>	<i>Mean</i>	<i>SD</i>	
MUA + steroid injection + manipulated extremity kept in abduction and external rotation + PT	Baseline	23 (16) ^a	28.56	24.45	
MUA + steroid injection + PT		20 (17) ^a	33.53	22.96	
<i>Intervention</i>	<i>Time point</i>	<i>No. analysed</i>	<i>Mean</i>	<i>SD</i>	<i>p-value^b</i>
MUA + steroid injection + manipulated extremity kept in abduction and external rotation + PT	12 weeks	16	83.38	6.61	0.213
MUA + steroid injection + PT		17	76.76	19.76	

Outcome: Range of movement – active internal rotation^c

<i>Intervention</i>	<i>Time point</i>	<i>No. randomised</i>	<i>Mean</i>	<i>SD</i>	
MUA + steroid injection + manipulated extremity kept in abduction and external rotation + PT	Baseline	23 (16) ^a	1.00	0.00	
MUA + steroid injection + PT		20 (17) ^a	1.12	0.33	
<i>Intervention</i>	<i>Time point</i>	<i>No. analysed</i>	<i>Mean</i>	<i>SD</i>	<i>p-value^b</i>
MUA + steroid injection + manipulated extremity kept in abduction and external rotation + PT	12 weeks	16	3.56	0.51	0.00
MUA + steroid injection + PT		17	2.65	0.7	

Outcome: Range of movement – passive abduction (°)

<i>Intervention</i>	<i>Time point</i>	<i>No. randomised</i>	<i>Mean</i>	<i>SD</i>
MUA + steroid injection + manipulated extremity kept in abduction and external rotation + PT	Baseline	23 (16) ^a	45.88	14.91
MUA + steroid injection + PT		20 (17) ^a	40.18	17.01

<i>Intervention</i>	<i>Time point</i>	<i>No. analysed</i>	<i>Mean</i>	<i>SD</i>	<i>p-value^b</i>
MUA + steroid injection + manipulated extremity kept in abduction and external rotation + PT	12 weeks	16	160.25	12.1	0.00
MUA + steroid injection + PT		17	137.76	15.21	
Outcome: Range of movement – passive external rotation (°)					
<i>Intervention</i>	<i>Time point</i>	<i>No. randomised</i>	<i>Mean</i>	<i>SD</i>	
MUA + steroid injection + manipulated extremity kept in abduction and external rotation + PT	Baseline	23 (16) ^a	37	23.22	
MUA + steroid injection + PT		20 (17) ^a	41.47	23.77	
<i>Intervention</i>	<i>Time point</i>	<i>No. analysed</i>	<i>Mean</i>	<i>SD</i>	<i>p-value^b</i>
MUA + steroid injection + manipulated extremity kept in abduction and external rotation + PT	12 weeks	16	91.25	6.45	0.200
MUA + steroid injection + PT		17	86.41	13.38	
Outcome: Range of movement – passive internal rotation^c					
<i>Intervention</i>	<i>Time point</i>	<i>No. randomised</i>	<i>Mean</i>	<i>SD</i>	
MUA + steroid injection + manipulated extremity kept in abduction and external rotation + PT	Baseline	23 (16) ^a	1	0.00	
MUA + steroid injection + PT		20 (17) ^a	1.18	0.39	
<i>Intervention</i>	<i>Time point</i>	<i>No. analysed</i>	<i>Mean</i>	<i>SD</i>	<i>p-value^b</i>
MUA + steroid injection + manipulated extremity kept in abduction and external rotation + PT	12 weeks	16	3.88	0.34	0.00
MUA + steroid injection + PT		17	2.88	0.49	

PT, physiotherapy.

a Baseline data not reported for patients lost to follow-up.

b *p*-value for between-group difference.

c Internal rotation was measured by spinal level (the metric used was not explicitly stated in the paper, but appears to be cm).

Note: Other range of movements reported, which were not of relevance to this review and are therefore not presented in the data extraction tables, included active forward flexion and passive forward flexion.

Study: Amir-us-Saqlain 2007⁸⁴

Outcome: Quality of life

Not reported

Study: Amir-us-Saqlain 2007⁸⁴**Outcome: Other**

Not reported

Study: Amir-us-Saqlain 2007⁸⁴**Outcome: Adverse events**

Not reported

Study: Jacobs 2009⁸⁵**Outcome: Pain measured using 100-point VAS**

<i>Intervention</i>	<i>Time point</i>	<i>No. randomised</i>	<i>Mean</i>	<i>SD</i>	
MUA	Baseline	28	Baseline data not reported		
Steroid + distension		25			
<i>Intervention</i>	<i>Time point</i>	<i>No. analysed</i>	<i>Mean regression coefficient</i>	<i>SE</i>	<i>p-value, 95% CI</i>
MUA	16 weeks	19	-2.77	0.33	Not significant, ^a
Steroid + distension		24	-2.75	0.42	-1.11 to 1.15

a Data presented graphically; only mean regression coefficients reported.

b Exact *p*-value not reported.**Study: Jacobs 2009⁸⁵****Outcome: Function and disability measured by the Constant score^a**

<i>Intervention</i>	<i>Time point</i>	<i>No. randomised</i>	<i>Mean</i>	<i>SD</i>	
MUA	Baseline	28	Baseline data not reported		
Steroid + distension		25			
<i>Intervention</i>	<i>Time point</i>	<i>No. analysed</i>	<i>Mean regression coefficient</i>	<i>SE</i>	<i>p-value,^b 95% CI</i>
MUA	16 weeks	19	3.13	0.24	Not significant,
Steroid + distension		24	3.23	0.42	-0.90 to 1.11

a Data presented graphically.

b *p*-value is for between-group difference; only mean regression coefficients reported.**Study: Jacobs 2009⁸⁵****Outcome: Range of movement**

Not reported

Study: Jacobs 2009⁸⁵

Outcome: Quality of life, SF-36 components (general health, bodily pain, physical role, emotional role, social functioning, bodily pain, vitality, mental health)^a

<i>Intervention</i>	<i>Time point</i>	<i>No. randomised</i>	<i>Mean</i>	<i>SD</i>		
MUA	Baseline	28	Baseline data not reported			
Steroid + distension		25				
<i>Intervention</i>	<i>Time point</i>	<i>No. analysed</i>	<i>Results reported</i>		<i>p-value^b</i>	
MUA	24 months	19	All components of the SF-36 improved for all patients during the course of treatment. The physical role and bodily pain components showed the greatest improvement			Not significant
Steroid + distension		24				

a Data reported graphically and brief description in text only.

b *p*-value is for between-group difference.

Study: Jacobs 2009⁸⁵

Outcome: Other

Not reported

Study: Jacobs 2009⁸⁵

Outcome: Adverse events

Not reported

Study: Kivimaki 2007³⁹**Outcome: Pain (pain intensity) measured using Likert 0–10 scale**

<i>Intervention^a</i>	<i>Time point</i>	<i>No. randomised</i>	<i>Mean</i>	<i>SD</i>
MUA + PT	Baseline	65	6.6	0.3
Home exercise		60	6.4	0.3
<i>Intervention^a</i>	<i>Time point</i>	<i>No. analysed</i>	<i>Mean</i>	<i>SD^b</i>
MUA + PT	6 weeks	55	4.9	NR
Home exercise		55	4.7	NR
MUA + PT	3 months	51	4.9	2.735
Home exercise		50	4.7	2.735
MUA + PT	6 months	38	2.0	NR
Home exercise		45	2.8	NR
MUA + PT	12 months	37	1.5	NR
Home exercise		42	2.2	NR

Outcome: Pain (pain intensity) measured using Likert 0–10 scale

<i>Intervention^a</i>	<i>Time point</i>	<i>No. randomised</i>	<i>Mean</i>	<i>SD</i>
MUA + PT vs home exercise	Baseline	125	NA	NA
<i>Intervention^a</i>	<i>Time point</i>	<i>No. analysed</i>	<i>Mean difference</i>	<i>95% CI</i>
MUA + PT vs home exercise	6 weeks	110	0.2	–0.64 to 1.02
MUA + PT vs home exercise	3 months	101	0.2	–1.06 to 1.10
MUA + physical therapy vs home exercise	6 months	83	–0.8	–1.80 to 0.20
MUA + PT vs home exercise	12 months	79	–0.7	–1.80 to 0.40

NA, not applicable; NR, not reported; PT, physiotherapy.

a All interventions received concomitant home exercise.

b SD calculated from 95% CI of mean difference.

Study: Kivimaki 2007³⁹**Outcome: Function and disability measured with a modified version of the SDQ**

<i>Intervention^a</i>	<i>Time point</i>	<i>No. randomised</i>	<i>Mean</i>	<i>SD</i>
MUA + PT vs home exercise	Baseline	125	NA	NA
<i>Intervention^a</i>	<i>Time point</i>	<i>No. analysed</i>	<i>Mean difference</i>	<i>95% CI</i>
MUA + PT vs home exercise	6 weeks	110	4	–3.8 to 11.8
MUA + PT vs home exercise	3 months	101	0.3	–2.69 to 2.75
MUA + PT vs home exercise	6 months	83	–1.7	–5.3 to 1.9
MUA + PT vs home exercise	12 months	79	0	–3.2 to 3.2

NA, not applicable; PT, physiotherapy.

a All interventions received concomitant home exercise.

Study: Kivimaki 2007³⁹**Outcome: Range of movement – passive abduction (°)**

<i>Intervention^a</i>	<i>Time point</i>	<i>No. randomised</i>	<i>Mean</i>	<i>SD</i>
MUA + PT vs home exercise	Baseline	125	NA	NA
<i>Intervention^a</i>	<i>Time point</i>	<i>No. analysed</i>	<i>Mean difference</i>	<i>95% CI</i>
MUA + PT vs home exercise	6 weeks	110	10	-3.2 to 23.2
MUA + PT vs home exercise	3 months	101	9	-6 to 24
MUA + PT vs home exercise	6 months	83	9	-4 to 22
MUA + PT vs home exercise	12 months	79	7	-5 to 19

Outcome: Range of movement – passive internal rotation (cm)

<i>Intervention^a</i>	<i>Time point</i>	<i>No. randomised</i>	<i>Mean</i>	<i>SD</i>
MUA + PT vs home exercise	Baseline	125	NA	NA
<i>Intervention^a</i>	<i>Time point</i>	<i>No. analysed</i>	<i>Mean difference</i>	<i>95% CI</i>
MUA + PT vs home exercise	6 weeks	110	4	-1 to 9
MUA + PT vs home exercise	3 months	101	-3	-7.4 to 2.4
MUA + PT vs home exercise	6 months	83	-2	-7.4 to 3.4
MUA + PT vs home exercise	12 months	79	-1	-4.1 to 6.1

Outcome: Range of movement – external rotation (°)

<i>Intervention^a</i>	<i>Time point</i>	<i>No. randomised</i>	<i>Mean</i>	<i>SD</i>
MUA + PT vs home exercise	Baseline	125	NA	NA
<i>Intervention^a</i>	<i>Time point</i>	<i>No. analysed</i>	<i>Mean difference</i>	<i>95% CI</i>
MUA + PT vs home exercise	6 weeks	110	5	-2 to 12
MUA + PT vs home exercise	3 months	101	6	-3 to 15
MUA + PT vs home exercise	6 months	83	6	-2 to 14
MUA + PT vs home exercise	12 months	79	4	-4.2 to 12.2

NA, not applicable; NR, not reported; PT, physiotherapy.

a All interventions received concomitant home exercise.

Study: Kivimaki 2007³⁹**Outcome: Quality of life**

Not reported

Study: Kivimaki 2007³⁹**Outcome: Other – working ability**

<i>Intervention^a</i>	<i>Time point</i>	<i>No. randomised</i>	<i>Mean</i>	<i>SD</i>
MUA + PT vs home exercise	Baseline	125	NA	NA

<i>Intervention^a</i>	<i>Time point</i>	<i>No. analysed</i>	<i>Mean difference</i>	<i>95% CI</i>
MUA + PT vs home exercise	6 weeks	110	0.4	–4.2 to 1.8
MUA + PT vs home exercise	3 months	101	0	–0.8 to 0.8
MUA + PT vs home exercise	6 months	83	0.5	–0.6 to 1.6
MUA + PT vs home exercise	12 months	79	0.1	–0.8 to 1.0

NA, not applicable; PT, physiotherapy.

a All interventions received concomitant home exercise.

Study: Kivimaki 2007³⁹**Outcome: Adverse events**

There were no major complications during manipulation

Study: Quraishi 2007³⁸**Outcome: Pain (pain overall), unspecified VAS**

<i>Intervention^a</i>	<i>Time point</i>	<i>No. randomised</i>	<i>Mean</i>	<i>Range</i>	<i>SD</i>
MUA + steroid injection	Baseline	17 (18 shoulders)	5.7	3.0–8.5	NR
Arthrographic distension		19 (20 shoulders)	6.1	4.0–10	NR

<i>Intervention^a</i>	<i>Time point</i>	<i>No. analysed</i>	<i>Mean</i>	<i>Range</i>	<i>SD</i>
MUA + steroid injection	2 months	15 (16 shoulders)	4.7	0–8.5	NR
Arthrographic distension		18 (18 shoulders)	2.4	0–8.0	NR
MUA + steroid injection	6 months	15 (16 shoulders)	2.7	0–9.0	0.64
Arthrographic distension		18 (18 shoulders)	1.7	0–7.0	0.64

NR, not reported.

a All interventions received concomitant home exercise.

Study: Quraishi 2007³⁸**Outcome: Function and disability measured using the Constant score**

<i>Intervention^a</i>	<i>Time point</i>	<i>No. randomised</i>	<i>Mean</i>	<i>Range</i>		
MUA + steroid injection	Baseline	17 (18 shoulders)	36	26–66		
Arthrographic distension		19 (20 shoulders)	28.8	18–55		
<i>Intervention^a</i>	<i>Time point</i>	<i>No. analysed</i>	<i>Mean</i>	<i>SD^b</i>		<i>p-value^c</i>
MUA + steroid injection	2 months	15 (16 shoulders)	58.5	NA		
Arthrographic distension		18 (18 shoulders)	57.4	NA		
MUA + steroid injection	6 months	15 (16 shoulders)	59.5	0.24		0.02
Arthrographic distension		18 (18 shoulders)	65.9	0.24		

NA, not applicable.

a All interventions received concomitant home exercise.

b *p*-value at 6 months was used to compute SD.

c *p*-value for between-group difference.

Study: Quraishi 2007³⁸**Outcome: Range of movement – external rotation (°)**

<i>Intervention^a</i>	<i>Time point</i>	<i>No. randomised</i>	<i>Mean</i>	<i>SD</i>		
MUA + steroid injection	Baseline	17 (18 shoulders)	NR	NR		
Arthrographic distension		19 (20 shoulders)	NR	NR		
<i>Intervention^a</i>	<i>Time point</i>	<i>No. analysed</i>	<i>Mean</i>	<i>SD</i>		<i>p-value^b</i>
MUA + steroid injection	6 months	15 (16 shoulders)	NR	NR		0.13
Arthrographic distension		18 (18 shoulders)	NR	NR		

Outcome: Range of movement – internal rotation (°)

<i>Intervention^a</i>	<i>Time point</i>	<i>No. randomised</i>	<i>Mean</i>	<i>SD</i>		<i>p-value</i>
MUA + steroid injection	Baseline	17 (18 shoulders)	NR	NR		NR
Arthrographic distension		19 (20 shoulders)	NR	NR		
<i>Intervention^a</i>	<i>Time point</i>	<i>No. analysed</i>	<i>Mean</i>	<i>SD</i>		<i>p-value^b</i>
MUA + steroid injection	6 months	15 (16 shoulders)	NR	NR		0.48
Arthrographic distension		18 (18 shoulders)	NR	NR		

Outcome: Range of movement – abduction (°)

<i>Intervention^a</i>	<i>Time point</i>	<i>No. randomised</i>	<i>Mean</i>	<i>SD</i>		<i>p-value</i>
MUA + steroid injection	Baseline	17 (18 shoulders)	NR	NR		NR
Arthrographic distension		19 (20 shoulders)	NR	NR		
<i>Intervention^a</i>	<i>Time point</i>	<i>No. analysed</i>	<i>Mean</i>	<i>SD</i>		<i>p-value^b</i>
MUA + steroid injection	6 months	15 (16 shoulders)	NR	NR		0.62
Arthrographic distension		18 (18 shoulders)	NR	NR		

NR, not reported.

a All interventions received concomitant home exercise.

b *p*-value for between-group difference.

Study: Quraishi 2007³⁸

Outcome: *Quality of life*

Not reported

Study: Quraishi 2007³⁸

Outcome: *Other – satisfaction*

94% of patients were satisfied or very satisfied after arthrographic distension compared with 81% after MUA

Study: Quraishi 2007³⁸

Outcome: *Adverse events*

Not reported
